OLYMPIC/PICO ONE-WAY PAIR
INITIAL FEASIBILITY REPORT

PREPARED FOR SUPERVISOR ZEV YAROSLAVSKY
THIRD SUPERVISORY DISTRICT
COUNTY OF LOS ANGELES

BY

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OLYMPIC/PICO ONE-WAY PAIR

EXECUTIVE SUMMARY

At the request of Los Angeles County Supervisor Zev Yaroslavsky, a preliminary investigation was undertaken regarding the feasibility of converting Olympic and Pico Boulevards into a one-way pair between the City of Santa Monica and Downtown Los Angeles Central Business District (CBD). The investigation included a review of recent experience with the implementation of one-way streets in other major cities, a windshield survey of existing conditions, traffic counts, and a "sketch-plan" assessment of the capacity benefits of the one-way proposal and of various alternatives.

As a result of the investigation, I am recommending that a combined one-way street system with a contra-flow peak period transit/van-pool lane (see the attached Exhibits 1a and 1b) be pursued. This approach has the potential for significant congestion relief (as much as 20.5 percent increase of vehicle capacity) while providing the opportunity for even more people carrying capacity enhancement (rapid bus transit and van-pools) in this corridor – far earlier than the light and heavy rail projects under study at the present time. The proposal would have Olympic Boulevard flowing eastbound (towards Downtown) and Pico Boulevard flowing westbound (towards Santa Monica). During the off-peak periods of the day local traffic could use the contra-flow lanes and parking would be allowed. During the peak periods of the day only buses and permitted vanpools would use the lane. Emergency vehicles could use the lanes at all times.

A more comprehensive program of corridor traffic demand management including renewal of past efforts towards car-pool/van-pool matching, managed work hours and operational management of freeway traffic would be an added benefit to this one-way system with contra-flow and it should be considered as this proposal is further analyzed.

Adjacent residential neighborhoods and businesses are severely impacted by the existing congestion. The one-way street alternatives examined may have ancillary circulation impacts to the neighborhoods which have to be weighed against the benefits of the relief in corridor congestion. According to published reports, the experience in other cities is that communities are able to adjust to the changes in circulation patterns. Meeting with the community is essential to develop context sensitive approaches to the implementation and mitigation of potential impacts.

Recommendations for the next steps should include more detailed analyses, focusing on terminal points of the proposed implementation and initiation of a coordinated stakeholder driven process involving the adjacent residents and businesses as well as the traffic and transit operators from the Cities of Beverly Hills, Los Angeles, Santa Monica, Culver City, and the Los Angeles County Metropolitan Transit Authority (MTA).

INTRODUCTION AND DESCRIPTION OF THE CORRIDOR

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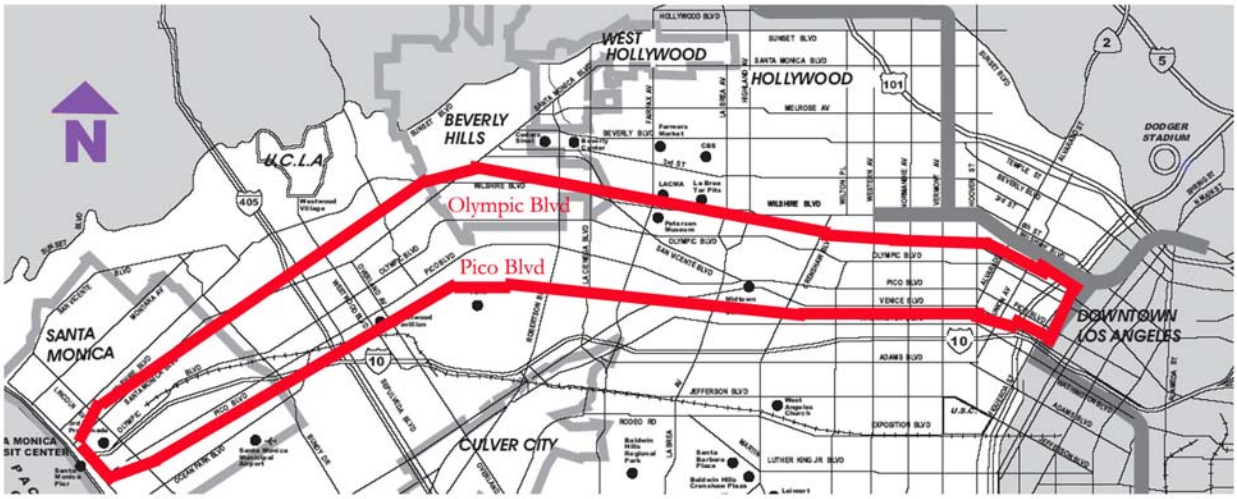
The following map depicts the Olympic/Pico Boulevards corridor between the City of Santa Monica and the Downtown Los Angeles Central Business District (CBD). The corridor is approximately 14 miles in length and traverses through the cities of Santa Monica, Los Angeles and Beverly Hills. Both Olympic and Pico Boulevards are major two-way arterials spaced between ¼ to ½ mile apart with varying number of intervening local streets. Within the City of Los Angeles, the corridor traverses through several diverse Council Districts (Council Districts 1, 5, 10 and 11).

OLYMPIC/PICO CORRIDOR



Source: Los Angeles County MTA

Land uses along Olympic Boulevard include industrial (within the City of Santa Monica), commercial retail/office and residential, with a sections of low density residential (Fox Hills, Carthay Circle, Windsor Square). Pico Boulevard is mostly commercial throughout the entire reach of the corridor. It is important to also note that these parallel arterials are mostly separated by residential uses in the intervening blocks. Exhibit 3b lists the adjacent land uses for each section of the corridor.

Besides the Los Angeles CBD, several major employment centers are served by this corridor, including the Mid-Wilshire District, the Beverly Hills CBD, Century City, UCLA, Westwood, the Water Court and the Santa Monica CBD.

The corridor parallels the congested Santa Monica Freeway (I-10), one of the most congested freeways in the country. This corridor is part of the Westside of Los Angeles, which is becoming notorious for its congestion levels. According to data in a recent report (High Flow Arterial Study – Phase 1, City of Los Angeles Department of Transportation, April 2005), more than 1/3 of the City's 75 highest traffic volume intersections are on the Westside. The combined Olympic/Pico Boulevard corridor serves more than 106,000 cars per day – nearly one-half of the traffic on the Santa

Monica Freeway. At the same time on these two arterials, patronage on the various bus lines of MTA and Santa Monica Municipal Bus Lines (the Blue Bus) are among the highest on both of their respective bus systems.

Congestion throughout this corridor is a source of major complaints to each of the local jurisdictions. Motorists are using whatever route they can to avoid the Santa Monica Freeway, and Olympic and Pico Boulevards are viable options to that route. Although the regional and local transportation agencies have proposed improvements for this corridor, implementation of any significant improvements is probably 5-15 years away. The most publicized improvements – the Exposition Light Rail Line and the Wilshire Red Line subway extension represent the most promising opportunities to provide rail-rapid transit in this corridor. MTA's proposed expansion of its successful Rapid Bus program is proposed for implementation on both Olympic and Pico Boulevards, but due to the congestion levels along these arterials the benefit in terms of travel time savings could be limited.

Due to increased traffic congestion on the Westside and the fact that light rail rapid transit is 10 years away before completion and even longer for the subway project, , Los Angeles County Supervisor Zev Yaroslavsky commissioned this study to evaluate and explore different options for the Westside that would help alleviate traffic congestion.

EXISTING TRANSPORTATION PLANS

The respective traffic engineers for the Cities of Los Angeles, Beverly Hills and Santa Monica have implemented state-of-the art traffic controls in this corridor, including peak period parking restrictions and computerized coordination of traffic signal timing and left turn phasing. Current traffic management activities have increased efforts to enforce peak period parking restrictions (establishment of Anti-gridlock Zones and the Tiger Team Enforcement) and refinement of traffic signal controls, with an emphasis on more left turn arrows. In spite of these efforts, congestion along this corridor is significant, and worthy of exploration of extraordinary traffic control measures.

The City of Los Angeles, in 1997, established the West Los Angeles Transportation Impact Mitigation Specific Plan, with a long list of capacity improvements, developer impact fees and regulations on future development. One notable improvement benefiting a portion of this corridor is the recent construction of the Santa Monica Boulevard Transitway project, which was partially funded with fees from this Specific Plan. Under the specific plan list of improvements, all that is proposed for Olympic Boulevard and Pico Boulevard is widening to their ultimate designated highway widths.

In its 2001 Long Range Plan, the Los Angeles County MTA included the construction of High Occupancy Vehicle (HOV) lanes on the San Diego Freeway (I-405), the construction of the Exposition Light Rail Line, and the possible extension of the Wilshire Red Line subway further to the west. There are no suggestions for HOV on the Santa Monica Freeway (I-10). MTA's Short Range Plan (2003) includes the further implementation of its Bus Rapid Transit Program, with proposed routes on both Olympic

and Pico Boulevards. Construction is underway on the I-405 HOV. The Exposition Line light rail is fully funded for phase 1, and MTA is initiating an environmental study of the extension of the Wilshire Red Line subway. Phase 1 of the Exposition Light Rail Line could be built in 5 years. An Environmental Impact Report (EIR) is underway for Phase II of the Exposition Light Rail Line, the extension to the City of Santa Monica. Construction of Phase II is not expected until 8 years into the future. The construction of the Red Line subway is an improvement that could take 10 to 15 years to implement.

ONE-WAY STREETS and REVERSIBLE TRAFFIC LANES

One-way streets have substantial benefits over two-way streets, where appropriate. The benefits include safety improvements and delay reduction due to:

- Reduction in turn and pedestrian conflicts
- Ability to implement optimal traffic lane widths
- Ability to improve traffic signal progression by direction
- Reduced travel time for public transit
- Ability to permit multiple turn lanes
- Redistribution of traffic to parallel routes
- Ability to simplify traffic signalization
- With demonstrated capacity increase, the ability to provide additional curbside parking

The disadvantages relate to circulation impacts of the return trip:

- Increase in vehicle miles of travel
- Impacts to the intervening streets
- Ability of transit riders to make the return trip
- Confusion to visitors and tourists
- Access by emergency vehicles.

Generally, the success of a one-way street depends upon the existence of a parallel arterial of similar capacity. The parallel road should ideally be adjacent (such as existing in major downtown districts), but numerous examples exist of successful one-way pairs with intervening two-way streets. Of equal importance is the need to provide for a safe transition from one-way to two-way streets at the endpoints of the corridor.

In the case of Olympic and Pico Boulevards, the potential exists for significant traffic signal timing simplifications to set up directional traffic flows. The possibility for elimination of left turn arrows for east and west traffic would be especially significant in this corridor.

On the other hand, the two arterials are not adjacent; hence the impact to transit riders, emergency vehicles and the intervening streets needs to be addressed.

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The concept of reversible traffic lanes refers the changing of direction of traffic lanes at times of the day. An example of reversible lanes, when taken to the extreme, could mean changing a two-way street to one-way during the peak period, as is the case for some streets in Washington, D.C. Up until 1966, Olympic Boulevard was operated by prohibiting left turns and turning the left turn lane into a reversed peak period lane. The major criterion for this kind of application is that traffic flow in one direction greatly exceeds that of the off-peak direction on a regular and predictable basis. A review of existing traffic counts, illustrated on Exhibits 2a and 2b, shows that the directional flows for both Olympic and Pico Boulevards do not follow a predictable pattern throughout the corridor.

METHODOLGY

The investigation included a review of recent experience with the implementation of one-way streets in other major cities, a windshield survey of existing conditions, traffic counts, and a "sketch-plan" assessment of the capacity benefits of the one-way proposal and of various alternatives.

The simple conversion of Olympic and Pico from two-way travel to one-way pairs, as described later in this report, was rejected for its impact to transit riders and to emergency vehicles. Instead, some 9 alternative traffic lane management schemes were analyzed and compared to the existing base scenario during the off peak and peak period (see tabulation below).

OLYMPIC/PICO ALTERNATIVES

ID NUMBER	ALTERNATIVES
I	BASE CASE - NOT PEAK HOUR
IP	BASE CASE - PEAK HOUR
IPA	BASE CASE - PEAK HOUR - LEFT TURN WITHOUT ARROWS
IP-NLT	BASE CASE - PEAK HOUR NO LEFT TURN
II	CONTRA FLOW - NOT PEAK HOUR
IIP	CONTRA FLOW - PEAK HOUR
IIP – NLT	CONTRA FLOW - PEAK HOUR- NO LEFT TURN
III	ONE WAY - PARKING ALLOWED
IIIP	ONE WAY - NO PARKING
IV-NLT	OFF CENTER - NO LEFT TURN
IVP-NLT	OFF-CENTER - NO PARKING NO LEFT TURN

See Appendix for detail lane use descriptions

For this initial screening study computer simulation of traffic flows, capacities and diverted travel patterns were not a part of the scope of work and should be included in the next steps. Instead, capacity benefits of alternatives were estimated based upon lane characteristics of prototypical cross sections. The "Sketch Plan" travel lane

capacity values (see tabulation below) were utilized in the comparison of alternatives, as detailed in the attached Appendix, assuming 90 second traffic signal timing cycles with multiple phases for left turns with arrows (see details in the attached Appendix). For all peak period scenarios, it was assumed that curb-side parking was prohibited on both sides of the street. As one can see from the table, removal of multiple left turn arrow signalization has a significant benefit for corridor capacity.

The vehicular capacity of the Contra-flow lane (necessarily 2-lanes wide) was estimated based upon anticipated service levels and vehicle equivalency. During the off peak period time, when local traffic and parking are expected in the lane, a maximum queue length of 10 vehicles per traffic signal cycle was assumed. During the peak period time, 3 minute headways of both buses and vanpools were assumed.

"SKETCH PLAN" TRAVEL LANE CAPACITY VALUES

LANE USE TYPE	VEHICLES PER HOUR
Left turn lane – with left turn arrow	360 veh per lane
Left turn lane – without left turn arrow	100 veh per lane
General purpose/mixed flow through lane – with left turn arrows	440 veh per lane
General purpose/mixed flow through lane – left turn arrows removed	600 veh per lane
Contra-flow lane – general purpose/mixed flow (anticipated during off-peak period)	590 veh (total for both lanes)
Contra-flow lane – restricted to transit and vanpool vehicles (anticipated during peak period)	1050 veh (total for both lanes)

See Appendix for details of calculations

MAJOR OBSERVATIONS

Employment levels and the shortage of proximate housing at all income levels in the Westside (including Beverly Hills, Century City and Santa Monica) yields the result that peak period commuter traffic generated by those centers equals or exceeds commuter traffic generated elsewhere in this corridor. While in the past, the predominant commuter traffic flow was between Westside and the Los Angeles Downtown CBD, the directionality of the peak period traffic flow in this corridor is no longer consistent of that pattern, switching from eastbound to westbound at several locations within the peak

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period (see Exhibits 2a and 2b). This type of traffic pattern is not conducive to reversible peak period lanes like those recently implemented in other major U.S. cities.

Curbside parking and left turn signal phases (left turn arrows) are major constraints to the capacity along Pico and Olympic Boulevards. Exhibits 3a and 3b show the locations of left turn arrows and parking restrictions with the current lane striping. Besides affording an opportunity to have progressive traffic signal timing, the significant advantage of one-way streets is that the need for left turn arrows along the corridor may be eliminated. For the most part in this corridor, the local traffic engineers have implemented peak period parking prohibitions – but left turn arrows are common. Left turn arrows, which are in certain instances necessary for traffic safety, can use up 33 – 39% of the traffic signal timing that could be allocated to corridor through traffic (Exhibit 3c). At these locations two left turn lanes potentially hold up 6 lanes of through traffic on each of the arterials.

The bus routes along this corridor are well established, including service by MTA, Santa Monica, Culver City and the LADOT. Converting from two way arterials to a pair of one-way arterials can improve the running speed of buses, but can also negatively impact the riders who must go to the parallel street for the return trip. A distance of one-quarter mile may be acceptable for walking between the two separated routes, but the distance between Olympic and Pico Boulevards (as a one-way pair) exceeds that threshold throughout most of the corridor (see Exhibits 4a and 4b). The contra-flow lane, analyzed in the proposed alternative is to provide two-way travel for buses on an otherwise one-way arterial.

The conversion of two-way traffic to one-way traffic pairs will also cause an increase in north-south traffic between the two boulevards to accommodate return trips. These turns would all be from the right turn lane as the proposed orientation would be clockwise, with Pico Boulevard (westbound) and Olympic Boulevard eastbound. More detailed simulation studies are necessary to document the expected levels of re-circulated traffic and a comparison to a possible reduction in existing by-pass motorists who already travel through the intervening residential neighborhoods in attempts to circumvent the bottlenecks and congestion.

Olympic and Pico Boulevards are of varying widths throughout the corridor-however a 7 lane configuration (72 – 74 feet) is possible through most of the route. Thus one can conclude that the two arterials are comparable. In the City of Santa Monica, raised and landscaped medians have been constructed, limiting the potential for changing lane configurations. There is also a short section of Pico Boulevard, between Vermont and Western Avenues, which appears too narrow for the 7 lane configuration. Additional study is necessary to determine if the one-way/contra-flow lane proposal should extend into the City of Santa Monica or all the way into Downtown Los Angeles.

The City of Santa Monica has not implemented peak period curbside parking restrictions along these arterials. Peak period parking restrictions have not been fully implemented on Pico Boulevard between Fairfax Avenue and Beverly Drive. The commercial businesses and adjacent residential areas along this section of Pico

Boulevard experience extreme parking shortages. If curb parking is to be retained in this section, the corridor capacity benefits of the proposed alternative would be reduced, but still of significant benefit with left turn prohibitions. Consideration of this condition is one of the reasons for the proposed orientation of the one-way pair, with Pico Boulevard serving westbound traffic, the predominant direction of traffic flow for the morning peak period in this segment. That time period would be outside of the commercial property peak curbside parking needs, so that curbside parking might be prohibited during the morning.

The existing peak period parking restrictions vary along the corridor. Most common restrictions in the City of Los Angeles are between 7 to 9 am and 4 to 6 pm, but there are recent changes in restrictions along this corridor that include 7 to 10 am and 3 to 7 pm. Most of the traffic counts available for this study were taken between the hours 6 to 9 am and 3 to 6 pm. From the data reviewed, it appears that the extended hours of restrictions are valid as the length of time for the "peak period" traffic is extending.

Much of the commuter traffic to the employment centers in this corridor involves long distances, well beyond the limits of the proposed one-way pair corridor. Congestion on the Santa Monica Freeway (I-10) is a major reason for the increased traffic on this corridor. These long distance commuters would benefit by coordinated traffic management on the freeway system. Long distance commuters are also good candidates for the formation of car and van-pools. Important programs that were initiated 20 – 30 years ago in freeway corridor traffic management and coordinated ridesharing efforts have all but vanished. Reinstituting "smart" freeway corridor programs involving Caltrans and the affected cities and a Westside Transportation Management Organization (TMO) can result in significant reductions in congestion.

PROPOSAL – ONE WAY WITH CONTRA-FLOW

The fatal flaw with fully converting Olympic and Pico Boulevards to one-way arterials is the impact to transit riders and emergency vehicles, due to the distance of separation (1/4 to ½ mile) between these arterials.

The alternative proposed for further study is a variation of the one-way proposal with the addition of a contra-flow lane (minimum width of 2 lanes) as illustrated in Exhibit 1a and 1b. This lane would provide for local access and parking during the off-peak period, but would be restricted to buses and permitted vans during the peak period. During the peak period, local businesses and residents along the contra-flow side of the street would have access to their respective driveways by making a left turn. Emergency vehicles would have use of the contra-flow lane at all times. Additional details of the contra-flow lane follow later in this section.

Similar to the one-way proposal, general purpose lanes would serve westbound travel along Pico Boulevard and eastbound traffic along Olympic Boulevard. Pico Boulevard was selected as westbound and Olympic Boulevard as eastbound to set up a clockwise circulation between the two routes – so that return trips involve right turns instead of left

turns. As a further benefit of the clock-wise flow pattern the possibility exists for reducing the number of left turns at major intersections during the peak period. This configuration also facilitates access to the San Diego Freeway (I-405) and works well with the grade separated ramp access to Avenue of the Stars at Century City.

Consideration of the parking issues on Pico Boulevard between Fairfax and Beverly Glen is another reason for the proposed orientation of the one-way pair. With Pico Boulevard serving westbound traffic, the morning predominant flow in this segment, which is outside of the commercial property peak curbside parking needs, raising the possibility that curbside parking might be prohibited during the morning peak period.

Further simulation of traffic capacity is needed to determine the precise definition of "peak period." Because of limited capacity, the congestion levels warrant the recent extended 7 am to 10 am and 3 pm to 7 pm parking restrictions, but the extra capacity provided for in the proposed alternative may allow for return to the previous 7 am to 9 am and 3 pm to 6 pm hours.

For this study the proposed alternative was compared to the existing conditions and to the simple one-way street example. The proto-typical cross-sections of Pico and Olympic Boulevards as they exist today are illustrated in Exhibits 5a and 5b. During the off-peak times, there is parking on both sides of each of the boulevards, at least 2-lanes in each direction and a continuous left turn pocket (Exhibit 5a). During the peak times, curbside parking is prohibited, to provide an additional lane in each direction (Exhibit 5b). Thus during peak traffic times, there are at least 6 through lanes on each street.

An illustration of a simple one-way pair alternative is represented by Exhibits 5c and 5d. During peak traffic times, there could be 7 through lanes on each street. . This alternative is not recommended, however, because of the major impact to bus riders and emergency vehicles.

To address the bus rider issue, the proposed alternative would add a contra-flow lane to the one-way concept (please refer to, again, Exhibits 1a and 1b). Wherever possible, a contra-flow lane should be 2-lanes wide to allow by-pass of stopped vehicles. During the peak traffic times, the proposed alternative thus has 5 through lanes on each street and 2 contra-flow lanes.

Provision of 2 contra-flow lanes could have very different applications during off-peak period and peak period. During off-peak period (Exhibit 1a), vehicle access to local businesses and residences would be provided. Buses would be utilizing the 2nd lane along with local mixed traffic. Mixed traffic would be discouraged from using the contra-flow lane for the entire corridor with a mandatory right turn (buses exempted) at strategic intersections. There is precedent for this traffic control treatment on recently installed bus lanes in Downtown Los Angeles (see Exhibit 1c)

During peak period (Exhibit 1b), use of the contra-flow lanes would be restricted to buses and permitted commuter van-pools (inclusion of car-pools in the use of these lanes would be too difficult to enforce). Buses in this corridor will include local buses

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and the future expansion of MTA's rapid bus program. Curb-side parking would necessarily be prohibited during the peak period times as the rapid buses and van-pools need to by-pass buses stopped for loading/unloading.

At all times, left turns are prohibited from the contra-flow lane because accommodating left-turns across 5 opposing traffic lanes would require left turn arrows. For the predominant flow direction, the restricted (and thus lower) traffic volumes in the two contra-flow lanes provides the opportunity to eliminate left-turn arrows.

The following table summarizes a "sketch plan" analysis of the corridor capacity benefit (20.5%) of the proposed alternative (Alt IIP NLT - one-way with contra-flow and no left turns). The analysis shows that even though the number of general purpose through lanes is reduced, the benefits of progressive signal timing and the elimination of left-turn arrows more than off-sets the reduction. At some locations (for example at Beverly Glen) left turns may have to be accommodated, the proposed contra-flow lane configuration would have still have a significant capacity benefit, an estimated 5.7% Alt IIP, see Appendix). Use of computerized traffic simulation programs (not within the scope of this investigation) is necessary to further evaluate the capacity and level-of-service implications in the estimation of local circulation impacts.

Peak period Comparison of Alternatives
Pico and Olympic Boulevards

	Existing	One-way	One-way with Contra-flow (Alt IIP NLT)
General Purpose Thru lanes	12 lanes	14 lanes (+ 16.7% change)	10 lanes (- 16.7% change)
Vehicles (vehicles per hour)	6720 vph	8400 vph (+25% change)	8100 (+20.5 % change)

See Appendix for details on capacity calculations

IMPLEMENTATION

Implementation of the proposed one-way with contra-flow lane will take a number of steps. In terms of construction, the local agencies will have to change traffic signals (poles and mast-heads), install signs and change the striping on the street. Added to the costs will be traffic sensing loops and bus emitters to assist in the implementation of the MTA's rapid bus routes on both streets. These are not insignificant costs, but far less expensive than any of the rail transit proposals.

First, however, additional design and study is necessary to refine the proposal and to identify the endpoints of the treatment. Working with the adjacent property owners and adjacent communities will be necessary to identify the need for any additional traffic

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controls. Additional lane use and parking prohibition authority, through a traffic control ordinance needs to be approved by the local traffic commissions and city councils.

Finally, a public education program needs to be developed to train users of the corridor as to the unusual traffic patterns. This effort needs to be coordinated with the local police officers who must enforce new regulations.

Further, a comprehensive congestion relief strategy is necessary to complement the proposed corridor treatment.

A COMPREHENSIVE CONGESTION RELIEF STRATEGY

To have a major impact on congestion in this corridor, something has to be done to manage the congestion on the near-by freeways. In the past, there has been significant success in cooperative traffic management among the agencies in this corridor. Cited examples include the efforts during the 1984 Olympics and, most notably, during the reconstruction of the Santa Monica Freeway (I-10)/La Cienega bridge which was damaged during the 1994 Earthquake. Those events demonstrated the amount of congestion relief that can be expected by as little as a 3% decrease in traffic demand.

In both instances, transportation agencies worked feverishly under a previously established “smart” freeways program to manage the traffic flows and received cooperation from the public in terms of flexible work times and formation of car and van pools. New technologies exist to extend these efforts in a performance based traffic management effort that should be designed to keep surge traffic demands on the freeway system below levels that cause traffic flow breakdown. Real time ramp metering, coordinated with real time traffic signal controls on arterials are key to this effort. Unfortunately, the organizational structures to sustain the effort have disappeared. If freeway flow can be maintained at 40 – 45 miles per hour, freeway capacity can be maximized with substantial benefits to the Olympic/Pico Corridor. What may be needed is a formal program and cooperative agreements to form a West-LA Traffic Corridor Management Program.

Employers can have a significant role in congestion management efforts. During the 1970’s, air quality management legislation (SCAQMD Regulation XV) required the formulation of employer traffic management programs for businesses of 100 or more employees. Strategies to help employers comply with Regulation XV included flexible work hours and other incentives to rideshare. Use of commute alternatives increased as employers provided incentives to workers to not drive alone. Transportation Management Organzations (TMO’s) formed in many high employment centers including in Century City, however employers abandoned their collective efforts as Regulation XV was weakened.

Recent conditions of approval for several real estate developments in Century City have mandated the involvement of property owners and tenants in efforts to reduce vehicle trips among commuters. While the Chamber of Commerce and the emerging Business

Improvement District have begun to lead efforts to bring property owners and employers/tenants together (in a TMO-like arrangement) to deliver practical transportation solutions (such as a shuttle program to deliver travelers to/from regional transit service) to further encourage use non-drive alone commutes. A collective effort among stakeholders in Century City and other Westside communities, along the lines of a West-LA TMO, could be the vehicle for implementing many local transportation management strategies.

NEXT STEPS

This initial study demonstrates that a significant capacity benefit is possible for a one-way pair with contra-flow lanes. At the same time, the contemplated extension of the MTA rapid bus program could have substantial benefits in its hope to attract new transit and van pool riders.

Refinement of the proposal is necessary before implementation. A cooperative work program including MTA and the local transportation agencies should be initiated. MTA might consider funding the work program as part of its implementation of bus rapid transit along this corridor. The work program needs to include extensive input from the adjacent businesses and residents and further exploration of the creation of a West-LA Traffic Corridor Management Plan and a West-LA Transportation Management Organization.

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LIST OF EXHIBITS

1a – Proposed One-way with Contra-flow Lane – off peak period
1b – Proposed One-way with Contra-flow Lane – peak period
1c – Current signage – LADOT Bus Lane – Downtown Los Angeles – Figueroa Street

2a – Peak Period Traffic Flows – morning
2b – Peak Period Traffic Flows – evening

3a – Olympic/Pico Corridor – current lane configuration and signalization
3b – Olympic/Pico Corridor – field notes – land use by section
3c – Capacity Impacts of Left Turn Arrows

4a – Existing Bus Routes
4b – Walking Distance for Bus Riders between Olympic and Pico

5a – Typical Existing Striping – off peak period
5b – Typical Existing Striping – peak period
5c – Possible One-way Striping – off peak period
5d – Possible One-way Striping – peak period

APPENDIX – Capacity Calculations – various alternatives

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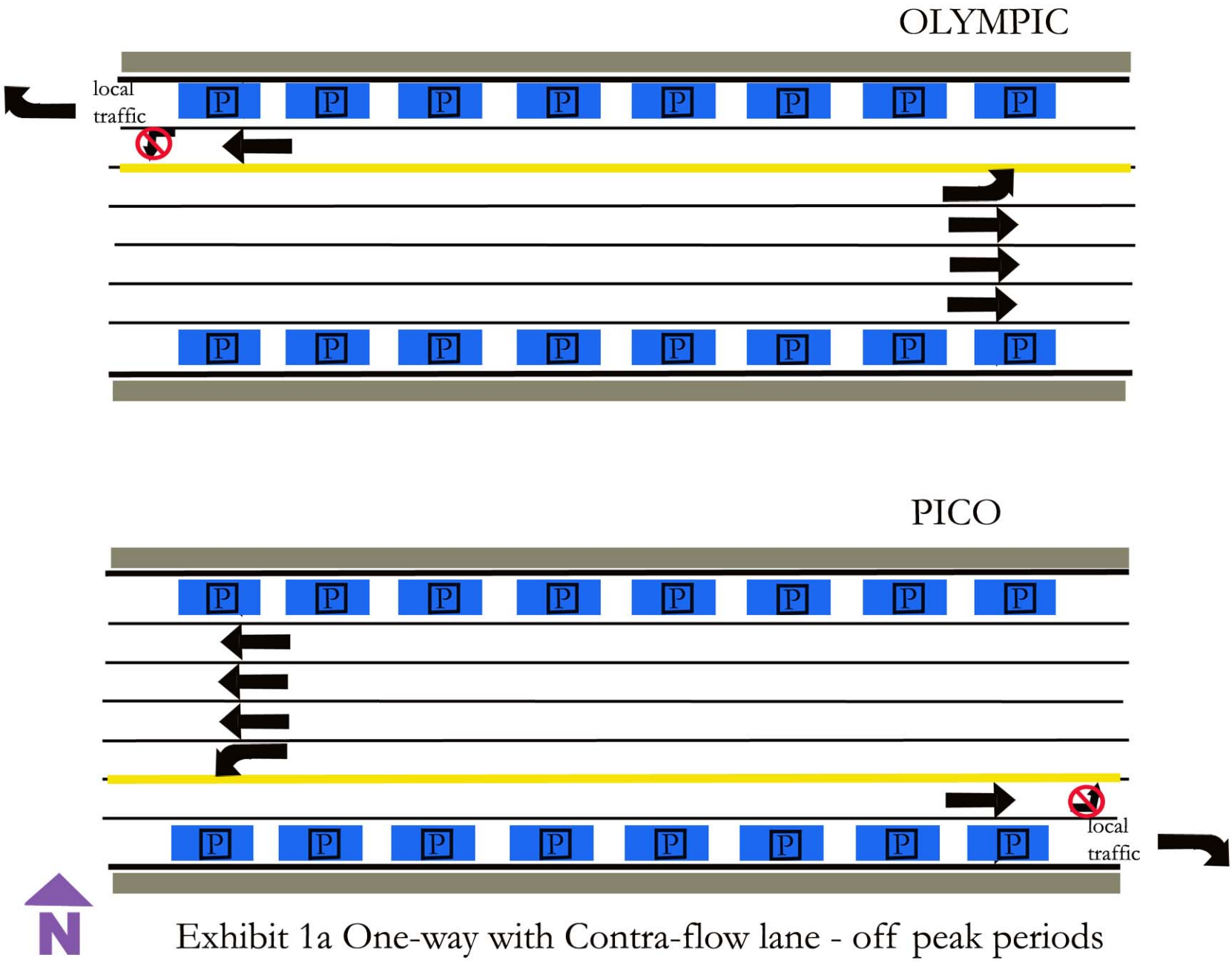


Exhibit 1a One-way with Contra-flow lane - off peak periods

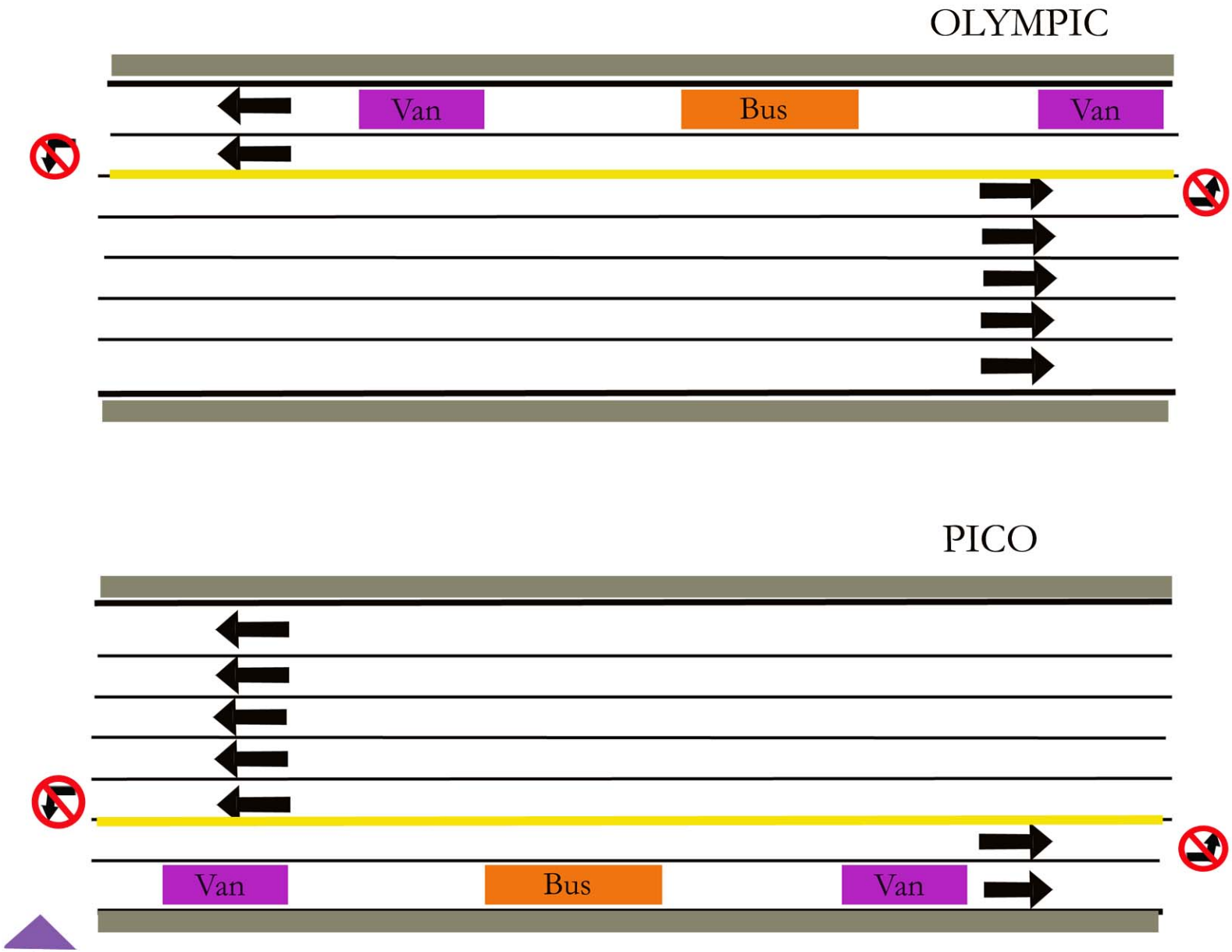


Exhibit 1b - One-way with Contra-flow lane - peak periods

Exhibit 1c Current signage - LADOT Bus Lane - Downtown Los Angeles - Figueroa Street

MORNING DIRECTIONAL SPLIT

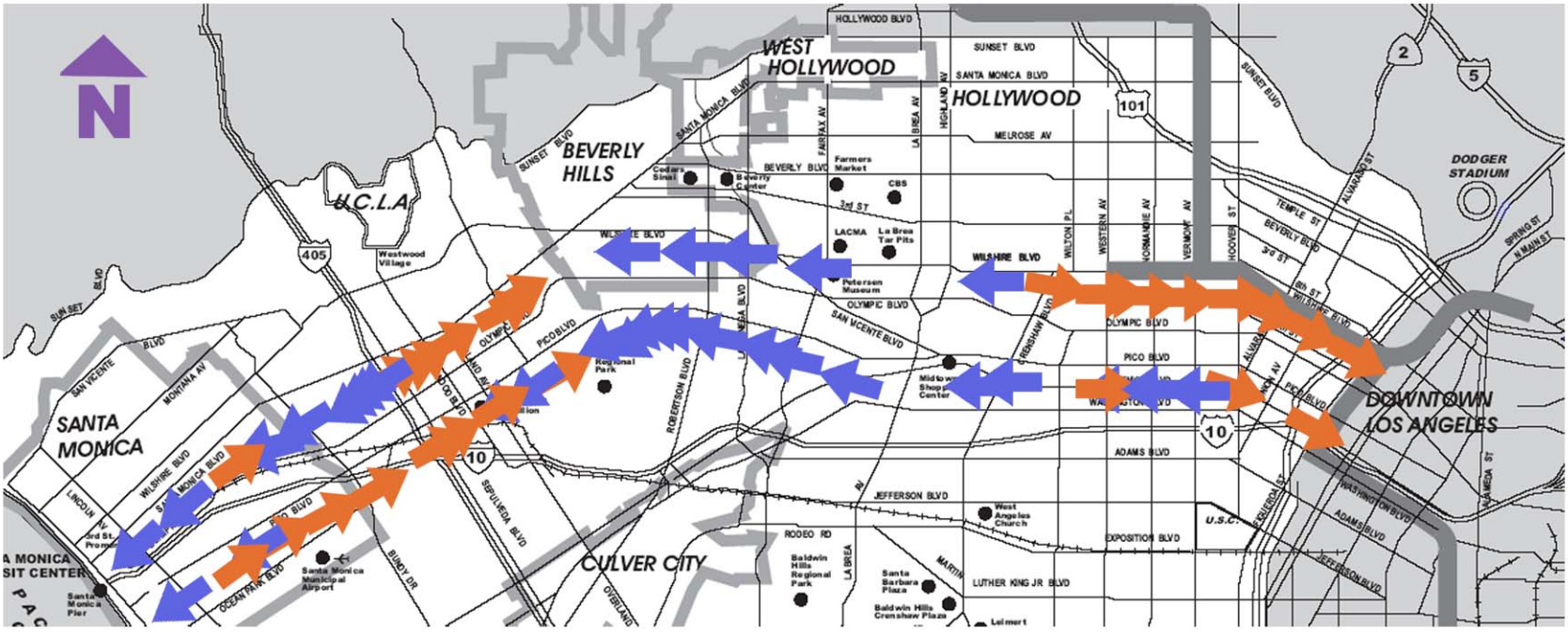


Exhibit 2a - Peak Period Traffic Flows - morning

EVENING DIRECTIONAL SPLIT

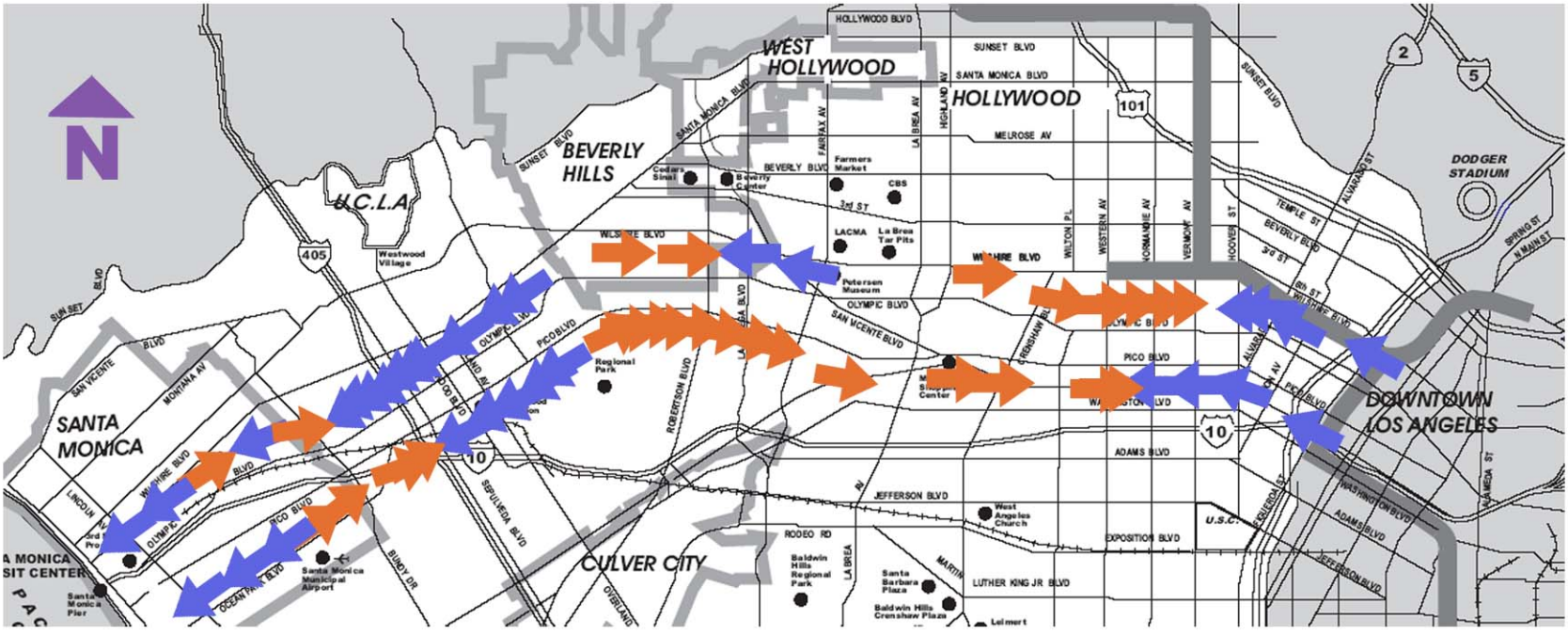
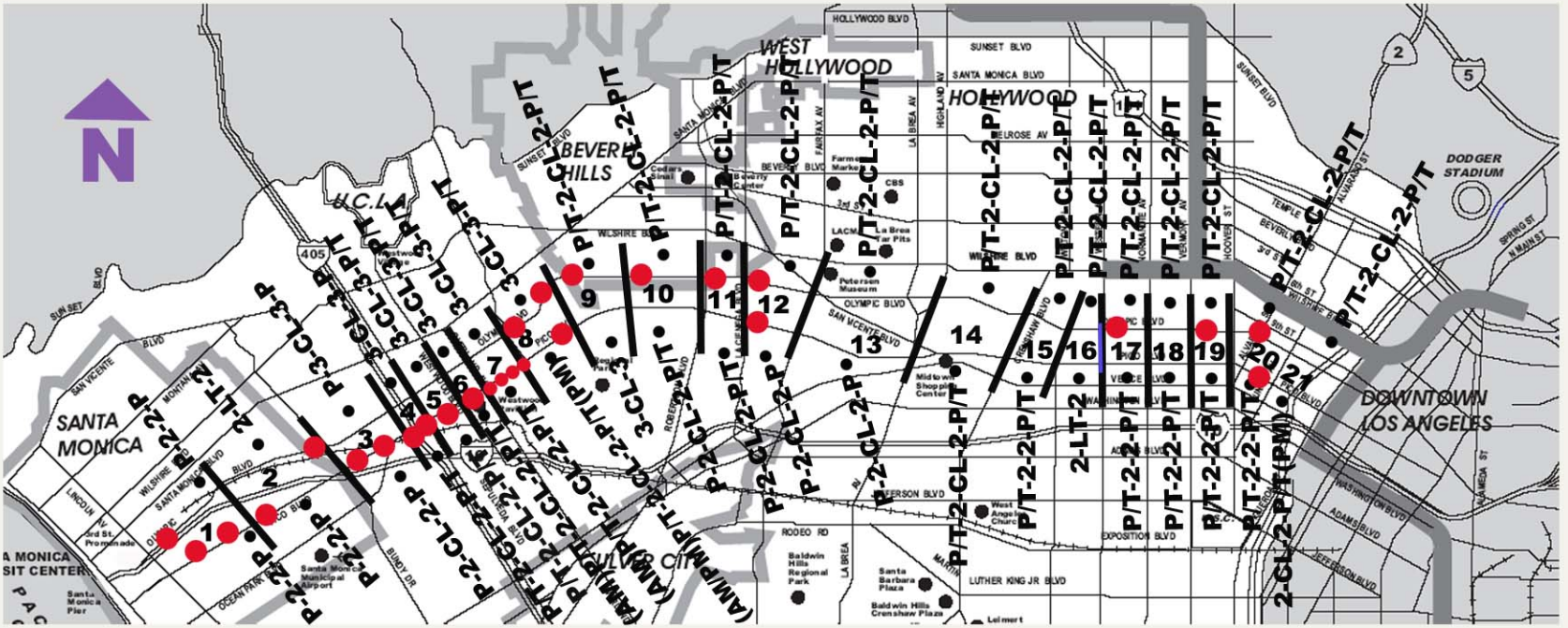


Exhibit 2b - Peak Period Traffic Flows - evening

Exhibit 3a Olympic/Pico Corridor
Current Lane Configuration and Signalization



LEGEND - LANE DESIGNATIONS FROM SOUTH SIDE TO THE NORTH SIDE:

P-2-CL-2-P	FROM SOUTH CURB TO NORTH CURB --- PARKING; 2 THRU LANES; CENTER LANE, 2 THRU, PARKING		
P/T	PARKING OFF PEAK HOUR - THRU LANE PEAK HOUR	RT	RIGHT TURN LANE
P	PARKING ALLOWED ALL DAY	RM	RAISED MEDIAN
2	2 THRU LANES		
CL	CENTER LANE - MIDBLOCK LEFT TURNS		
LT	LEFT TURN LANE	●	LEFT TURN ARROW(S)

Olympic Boulevard	NOTE: Olympic Blvd. is a bike route / Olympic Blvd. PEAK HOUR PARKING PROHIBITION is 7:00AM-10AM + 3:00PM-7:00PM								
	BUS STOP South Side	STREET A	STREET B	STRIPING	LEFT TURN ARROW	RAISED MEDIAN	NEIGHBOR-HOOD	TRAFFIC SIGNAL	BUS STOP North Side
Segment 1: w. of Lincoln - Cloverfield		**West of Lincoln**							
		East of Lincoln		2 lanes E of Lincoln, 1 west bound lane					
		Lincoln	**11th**	P-2-2-P		RM (very wide)	**Industrial**	TS @ 11th	
		11th	**14th**	P-2-2-P		RM (very wide)		TS @ 14th	
		14th	**17th**	P-2-2-P w/ LT @ Int.		RM (very wide)		TS @ 17th	
		17th	**20th**	P-2-2-P		RM		TS @ 20th	
		20th	**Cloverfield**	P-1-2		RM		TS @ Cloverfield	
		"	**"**	P-1-LT-2	LTA				
Segment 2: Cloverfield - Bundy		**Cloverfield**	**26th**	2-LT-LT-2		RM (very wide)		TS @ 26th St.	
	FS @ 26th	**26th**	**Stewart**	.2-2		RM (very wide)		TS @ Stewart	NS @ 26th
	FS @ Stewart	**Stewart**	**west Centinela**	2-LT-2		RM (very wide)	**Industrial**	TS @ w Centinela	NS @ Stewart
		west Centinela	**east Centinela**	RT-2-CL-2-RT					
	FS @ E Centinela	**east Centinela**	**Bundy**	P-3-CL-3-P	LTA @ Bundy			TS @ Bundy	NS @ E Centinela
Segment 3: Bundy - Sawtelle	FS @ Bundy	**Bundy**	**Barrington**	RT-3-CL-3-P			**Commercial**	TS @ Bundy	NS @ Bundy
		"	**"**	P-3-CL-3-P					
	NS @ Barrington	**Barrington**	**Colby**	P-3-CL-3-P				TS @ Barrington	NS @ Barrington
	NS @ Colby	**Colby**	**Purdue**	P-3-CL-3-P				TS @ Colby	NS @ Colby
	NS @ Purdue	**Purdue**	**Corinth**					TS @ Purdue	NS @ Purdue
	FS @ Sawtelle	**Corinth**	**Sawtelle**	3-CL-3-P				TS @ Corinth	NS @ Sawtelle
Segment 4: Sawtelle - Sepulveda	FS @ Sawtelle	**Sawtelle**	**Cotner**	3-CL-3-P			**Residential**		NS @ Sawtelle
		Cotner	**Pontius**	3-CL-3-P				TS @ Cotner	
	NS @ Pontius	**Pontius**	**Sepulveda**	3-CL-3-P					NS @ Pontius
Segment 5: Sepulveda - Westwood		**Sepulveda**	**Veteran**	3-CL-3-P/T			**Residential**		
		Veteran	**Westwood**	3-CL-3-P/T					
Segment 6: Westwood - Overland	FS @ Westwood	**Westwood**	**Overland**	3-CL-3-P/T			**Residential**	TS @ Westwood	FS @ Westwood
Segment 7: Overland - Beverly Glen	NS @ Overland	**Overland**	**Beverly Glen**	3-CL-3-P/T			**Residential**		NS @ Overland
Segment 8: Beverly Glen - Ave of the Stars	NS @ Beverly Glen	**Beverly Glen**	**Century Park West**	3-CL-3-P/T	LTA @ Beverly Glen		**Residential**		NS @ Beverly Glen
		Century Park West	**Ave of the Stars**	3-CL-3-P/T	LTA @ Century Park West		**Commercial**		

Exhibit 3b - OLYMPIC BLVD - EXISTING CONDITIONS

Segment 9: Ave of the Stars - Beverwil		**Ave of the Stars**	**Century Park East**	RT-3-3			**Commercial**		
	FS @ Century Park Eas	**Century Park East**	**Spalding**	.3-3		RM	**Commercial**	TS @ Century Park East	NS @ Century Park East
	FS @ Spalding	**Spalding**	**Camden**	3-LT-3	LTA @ Spalding			TS @ Spalding	FS @ Spalding
				P/T-2-CL-2-P/T	**note: P/T 's are AM + PM parking on both sides**		**Residential**		
	FS @ Camden	**Camden**	**Beverwil**	P/T-2-CL-2-P/T				TS @ Camden	FS @ Camden
Segment 10: Beverwil - Robertson	NS @ Beverwil	**Beverwil**	**Rexford**	P/T-2-CL-2-P/T			**Commercial**		NS @ Beverwil
	FS @ Rexford	**Rexford**	**Doheny**	P/T-2-CL-2-P/T				TS @ Rexford	FS @ Rexford
	FS @ Doheny	**Doheny**	**Lapeer**	P/T-2-CL-2-P/T	LTA @ Doheny			TS @ Doheny	FS @ Doheny
	FS @ Lapeer	**Lapeer**	**Robertson**	P/T-2-CL-2-P/T				TS @ Lapeer	FS @ Lapeer
Segment 11: Robertson - La Cienega	FS @ Robertson	**Robertson**	**La Cienega**	P/T-2-CL-2-P/T	LTA @ Robertson		**Commercial**		FS @ Robertson
Segment 12: La Cienega - Fairfax	FS @ La Cienega	**La Cienega**	**La Jolla**	P/T-2-CL-2-P/T	LTA @ La Cienega		**Residential**		FS @ La Cienega
	NS @ La Jolla	**La Jolla**	**Crescent Heights**	P/T-2-CL-2-P/T					NS @ La Jolla
	NS @ Crescent Height	**Crescent Heights**	**Fairfax**	P/T-2-CL-2-P/T					NS @ Crescent Heights
Segment 13: Fairfax - La Brea	NS @ Fairfax	**Fairfax**	**Genessee**	3-CL-3			**Commercial**		NS @ Fairfax
	NS @ Genessee	**Genessee**	**Spaulding**	P/T-2-CL-2-P/T			**Residential**		NS @ Genessee
	NS @ Spaulding	**Spaulding**	**Curson**	P/T-2-CL-2-P/T					NS @ Spaulding
	NS @ Curson	**Curson**	**Hauser**	P/T-2-CL-2-P/T					NS @ Curson
	NS @ Hauser	**Hauser**	**Cochran**	P/T-2-CL-2-P/T					NS @ Hauser
	NS @ Cochran	**Cochran**	**La Brea**	P/T-2-CL-2-P/T					NS @ Cochran
Segment 14: La Brea - Crenshaw	NS @ La Brea	**La Brea**	**Mansfield**	P/T-2-CL-2-P/T			**Residential**		NS @ La Brea
	NS @ Mansfield	**Mansfield**	**Highland**	P/T-2-CL-2-P/T					NS @ Mansfield
	NS @ Highland	**Highland**	**?**	P/T-2-CL-2-P/T					NS @ Highland
	FS @ ?	**?**	**Muirfield**	P/T-2-CL-2-P/T					FS @ ?
	NS @ Muirfield	**Muirfield**	**Lucerne**	P/T-2-CL-2-P/T					NS @ Muirfield
	FS @ Lucerne	**Lucerne**	**Crenshaw**	P/T-2-CL-2-P/T					NS @ Lucerne
Segment 15: Crenshaw - Wilton/ Arlington	NS @ Crenshaw	**Crenshaw**	**Norton**	P/T-2-CL-2-P/T			**Commercial**		NS @ Crenshaw
	NS @ Norton	**Norton**	**4th Ave**	P/T-2-CL-2-P/T					NS @ Norton
	NS @ 4th	**4th Ave**	**Arlington**	P/T-2-CL-2-P/T					NS @ 4th
		"	**"**	3-CL-2-P/T	**note: this striping ocurrs @ car wash**				
		"	**"**	P/T-2-CL-2-P/T					
Segment 16: Wilton/ Arlington - Western	FS @ Arlington	**Arlington**	**St. Andrews**	P/T-2-CL-2-P/T			**Commercial**		FS @ Arlington
	NS @ St. Andrews	**St. Andrews**	**Western**	P/T-2-CL-2-P/T					NS @ St. Andrews
Segment 17: Western - Normandie	FS @ Western	**Western**	**Harvard**	P/T-2-CL-2-P/T	LTA @ Western		**Commercial**		FS @ Western
	NS @ Harvard	**Harvard**	**Normandie**	P/T-2-CL-2-P/T					NS @ Harvard

Exhibit 3b - OLYMPIC BLVD - EXISTING CONDITIONS

Segment 18: Normandie - Vermont	NS @ Normandie	**Normandie**	**Fedora**	P/T-2-CL-2-P/T			**Commercial**		NS @ Normandie
	NS @ Fedora	**Fedora**	**Catalina**	P/T-2-CL-2-P/T					NS @ Fedora
	NS @ Catalina	**Catalina**	**Berendo**	P/T-2-CL-2-P/T					NS @ Catalina
		Berendo	**Vermont**	P/T-2-CL-2-P/T					
Segment 19: Vermont - Hoover	NS @ Vermont	**Vermont**	**Westmoreland**	P/T-2-CL-2-P/T	LTA @ Vermont		**Commercial**		NS @ Vermont
	NS @ Elden	**Westmoreland**	**Elden**	P/T-2-CL-2-P/T					NS @ Elden
	NS @ Hoover	**Elden**	**Hoover**	P/T-2-CL-2-P/T					NS @ Hoover
Segment 20: Hoover - Union	NS @ Hoover	**Hoover**	**Alvarado**	P/T-2-CL-2-P/T	LTA @ Alvarado		**Commercial**		NS @ Hoover
	NS @ Alvarado	**Alvarado**	**Burlington**	P/T-2-CL-2-P/T					NS @ Alvarado
	NS @ Burlington	**Burlington**	**Union**	P/T-2-CL-2-P/T					NS @ Burlington
Segment 21: Union - E. of Figueroa	NS of Union	**Union**	**Valencia**	P/T-2-CL-2-P/T			**Commercial**		NS of Union
	NS of Valencia	**Valencia**	**Albany**	P/T-2-CL-2-P/T					NS of Valencia
		Albany	**Blaine**	P/T-2-CL-2-P/T					
	NS of Blaine	**Blaine**	**Georgia**	P/T-2-CL-2-P/T					NS of Blaine
		"	**"**	3-CL-2-P/T					
		Georgia	**Figueroa**	3-CL-3	CONSTRUCTION AREA				
				3-CL-2-P/T					
	NS of Figueroa	**Figueroa**	**E. of Figueroa**	P/T-2-CL-2-P/T					NS of Figueroa

WINDSHIELD SURVEY TAKEN FEBRUARY 7, 2007

LEGEND

P-2-CL-2-P	LANE CONFIGURATION READING SOUTH TO NORTH - --- PARKING; 2 THRU, CENTER LANE, 2 THRU, PARKING
P/T	PARKING OFF PEAK HOUR - THRU LANE PEAK HOUR
P	PARKING ALLOWED ALL DAY
2	2 THRU LANES
CL	CENTER LANE - PROVIDES MIDBLOCK LEFT TURNS
LT	LEFT TURN LANE
RT	RIGHT TURN LANE
RM	RAISED MEDIAN
NS	NEAR SIDE BUS STOP
FS	FAR SIDE BUS STOP

Pico Boulevard	Pico Boulevard is a Bike Route/ PARKING RESTRICTIOS (P/T) are AM + PM								
	BUS STOP South Side	STREET A	STREET B	STRIPING	LEFT TURN ARROW	RAISED MEDIAN/NOTES	NEIGHBOR-HOOD	TRAFFIC SIGNAL	BUS STOP North Side
Segment 1: w. of Lincoln - Cloverfield		**w. of Lincoln**	**Lincoln**	P-2-2					
		Lincoln	**11th**	2-LT-LT-2 (@ intersection)		RM			
		"	**"**	P-2-2-P					
		11th	**14th**	2-LT-2 (@ intersection)				TS @ 11th	
		"	**"**	P-2-2-P			**Commercial**		
		14th	**16th**	P-2-LT-2 (@ intersection)				TS @ 14th	
		"	**"**	P-2-2					
		16th	**17th**	P-2-2	LTA @ 16th			TS @ 16th	
		17th	**SMCC**	P-2-CL-2	LTA @ 17th			TS @ 17th	
		SMCC	**20th**	P-2-CL-2				TS @ SMCC	
		20th	**23rd**	2-LT-2		Note: Virgina Park @ 23rd St.		TS @ 20th	
		"	**"**	P-2-2-P					
	NS @ 23rd	**23rd**	**Cloverfield**	P-2-CL-2				TS @ 23rd	NS @ 23rd
Segment 2: Cloverfield - Bundy	FS @ Cloverfield	**Cloverfield**	**26th**	P-2-CL-2	LTA @ Cloverfield			TS @ Cloverfield	FS @ Cloverfield
	NS @ 26th	**26th**	**Stewart**	P-2-CL-2				TS @ 26th	NS @ 26th
	NS @ Stewart	**Stewart**	**33rd**	P-2-2-P		RM		TS @ Stewart	NS @ Stewart
	NS @ 33rd	**33rd**	**Centinela**	P-2-2-P		RM	**Commercial**	TS @ 33rd	NS @ 33rd
		"	**"**	P-2-CL-2-P					
	NS @ Centinela	**Centinela**	**Bundy**	P/T-2-CL-2-P/T		RM		TS @ Centinela	NS @ Centinela
Segment 3: Bundy - Sawtelle	NS @ Bundy	**Bundy**	**Barrington**	P-2-CL-2-P	LTA @ Bundy	Note: On-Ramp to 10 FWY		TS @ Bundy	NS @ Bundy
	NS @ Barrington	**Barrington**	**Gateway**	P-2-CL-2-P			**Commercial**	TS @ Barrington	NS @ Barrington
		Gateway	**Corinth**	3-CL-2	LTA @ Gateway			TS @ Gateway	
		Corinth	**Sawtelle**	P/T-2-CL-3				TS @ Corinth	
Segment 4: Sawtelle - Sepulveda	NS @ Sawtelle	**Sawtelle**	**Cotner**	P/T-2-CL-3	LTA @ Sawtelle			TS @ Sawtelle	NS @ Sawtelle
		Cotner	**Sepulveda**	P/T-2-CL-2-P/T	LTA @ Cotner		**Commercial**	TS @ Cotner	
Segment 5: Sepulveda - Westwood	NS @ Sepulveda	**Sepulveda**	**Bentley**	P/T-2-CL-2-P/T	LTA @ Sepulveda			TS @ Sepulveda	NS @ Sepulveda
	FS @ Veteran	**Bentley**	**Veteran**	P/T-2-CL-2-P/T		Note: Bike Route Signs appear	**Commercial**		FS @ Veteran
		Veteran	**Westside Pavillion**	P/T-2-CL-2-P/T				TS @ Veteran	
	NS @ Westside Pavillion	**Westside Pavillion**	**Midvale**	3-CL-3-P/T				TS @ Westside Pavillion	NS @ Westside Pavilli
		Midvale	**Westwood**	3-CL-3-P/T				TS @ Midvale	
Segment 6: Westwood - Overland	NS @ Westwood	**Westwood**	**Malcolm**	3-CL-3-R/T	LTA @ Westwood				NS @ Westwood
		Malcolm	**Selby**	(AM)P/T-2-CL-2-P/T		Note: Driveway to Westside Pavillion	**Commercial**	TS @ Malcolm	
		Selby	**Overland**	3-CL-2-P/T					

Exhibit 3b - PICO BLVD - EXISTING CONDITIONS

Segment 7: Overland - Beverly Glen	NS @ Overland	**Overland**	**Manning**	(AM)P/T-2-CL-2-P/T	LTA @ Overland		**Commercial**	TS @ Overland	NS @ Overland
	NS @ Manning	**Manning**	**Prosser**	(AM)P/T-2-CL-2-P/T	LTA @ Manning				NS @ Manning
	NS @ Prosser	**Prosser**	**Patricia**	(AM)P/T-2-CL-2-P/T	LTA @ Prosser	Note: LTA here For Traffic Management		TS @ Prosser	NS @ Prosser
	NS @ Patricia	**Patricia**	**Beverly Glen**	(AM)P/T-2-CL-2-P/T	LTA @ Patricia	Note: Fox Studios on the North Side		TS @ Patricia	NS @ Patricia
Segment 8: Beverly Glen - Ave of the Stars	NS @ Beverly Glen	**Beverly Glen**	**Kerwood**	(AM/PM)P/T-2-CL-2-P/T(PM)			**Commercial**	TS @ Beverly Glen	NS @ Beverly Glen
	NS @ Kerwood	**Kerwood**	**Fox Hills**	(AM/PM)P/T-2-CL-2-P/T(PM)				TS @ Kerwood	NS @ Kerwood
		"	"	3-CL-2-P/T(PM)					
		Fox Hills	**Motor**	3-CL-3	LTA @ Motor	Note: Golf Course on South Side of Street		TS @ Motor	FS @ Motor
	NS @ Motor	**Motor**	**Avenue of the Stars**						
Segment 9: Ave of the Stars - Beverwil	NS @ Ave of the Stars	**Ave of the Stars**	**Century Park East**	3-CL-3	TA @ Ave of the Stars			TS @ Ave of the Stars	NS @ Ave of the Stars
	FS @ Century Park East	**Century Park East**	**Roxbury**	3-CL-3		Note: Golf Course on South Side of Street	**Residential**	TS @ Century Park East	
	NS @ Roxbury	**Roxbury**	**Beverwil**	(AM/PM)P/T-2-CL-2-P/T				TS @ Roxbury	NS @ Roxbury
Segment 10: Beverwil - Robertson	FS @ Beverwil	**Beverwil**	**Edris**	P/T-2-CL-2-P/T				TS @ Beverwil	
		Edris	**Beverly**	P-2-CL-2-P/T			**Commercial**		
	NS @ Beverly	**Beverly**	**Glenville**	P-2-CL-2-P/T				TS @ Beverly	
	NS @ Glenville	**Glenville**	**Doheny**	P-2-CL-2-P/T				TS @ Glenville	
	NS @ Doheny	**Doheny**	**Livonia**	P-2-CL-2-P/T				TS @ Doheny	
	FS @ Livonia	**Livonia**	**Robertson**	P-2-CL-2-P/T				TS @ Livonia	
Segment 11: Robertson - La Cienega	FS @ Robertson	**Robertson**	**Shenandoah**	P-2-CL-2-P/T			**Commercial**	TS @ Robertson	FS @ Robertson
	NS @ Shenandoah	**Shenandoah**	**Sherbourne**	P-2-CL-2-P/T				TS @ Shenandoah	NS @ Shenandoah
		Sherbourne	**La Cienega**	P-2-CL-2-P/T				TS @ Sherbourne	
Segment 12: La Cienega - Fairfax	?	**La Cienega**	**Crescent Heights**	P-2-CL-2-P/T (Tiger)	LTA @ La Cienega		**Commercial**	TS @ La Cienega	
	?	**Crescent Heights**	**Fairfax**	P-2-CL-2-P					

Segment 13: Fairfax - La Brea	FS @ Fairfax	**Fairfax**	**Genesee**	P-2-CL-2-P					FS @ Fairfax
	NS @ Genesee	**Genesee**	**Curson**	P-2-CL-2-P					NS @ Genesee
	FS @ Curson	**Curson**	**Hauser**	P-2-CL-2-P					FS @ Curson
	NS @ Hauser	**Hauser**	**Cochran**	P-2-CL-2-P					NS @ Hauser
	NS @ Cochran	**Cochran**	**Redondo**	P-2-CL-2-P			**Commercial**		NS @ Cochran
	NS @ Redondo	**Redondo**	**Orange**	P-2-CL-2-P					NS @ Redondo
		Orange	**La Brea**	P/T-2-CL-2-P/T					
Segment 14: La Brea - Crenshaw	FS @ La Brea	**La Brea**	**Long wood**	P/T-2-CL-2-P/T					NS @ La Brea
		"	**"**	3-CL-3					
		Long wood	**San Vicente**	P/T-2-CL-2-P/T					
	NS @ San Vicente	**San Vicente**	**Rimpau**	P/T-2-CL-2-P/T					FS @ San Vicente
	NS @ Rimpau	**Rimpau**	**Mullen**	P/T-2-CL-2-P/T		Note: Entrance to Pico/ Rimpau Transit Center	**Commercial**		NS @ Rimpau
	NS @ Mullen	**Mullen**	**West**	P/T-2-CL-2-P/T		Note: Midtown Shopping Center			NS @ Mullen
	NS @ West	**West**	**Crenshaw**	P/T-2-CL-2-P/T					NS @ West
Segment 15: Crenshaw - Wilton/ Arlington	NS @ Crenshaw	**Crenshaw**	**Norton**	P/T-2-2-P/T			**Commercial**		FS @ Crenshaw
	NS @ Norton	**Norton**	**4th Ave**	P/T-2-2-P/T					NS @ Norton
	NS @ 4th Ave	**4th Ave**	**Wilton/ Arlington**	2-LT-2 (@ intersection)					NS @ 4th Ave
		"	**"**	P/T-2-2-P/T		Note: There is a 3rd lane possible			
Segment 16: Wilton/ Arlington - Western	NS @ Arlington	**Arlington**	**Wilton**	2-LT-2					NS @ Arlington
	NS @ Wilton	**Wilton**	**Western**	2-LT-2			**Commercial**		NS @ Wilton
		"	**"**	P/T-2-2-P/T					
Segment 17: Western - Normandie	NS @ Western	**Western**	**Harvard**	2-LT-2		Note: No longer the gridlock zone in this area			NS @ Western
		"	**"**	P/T-2-2-P/T					
	NS @ Harvard	**Harvard**	**Normandie**	P/T-2-2-P/T			**Commercial**		NS @ Harvard
		"	**"**	2-LT-2-P/T					
Segment 18: Normandie - Vermont	NS @ Normandie	**Normandie**	**Catalina**	2-LT-2-P/T					NS @ Normandie
		"	**"**	P/T-2-2-P/T			**Commercial**		
	NS @ Catalina	**Catalina**	**Vermont**	P/T-2-2-P/T					NS @ Catalina
				P/T-2-LT-2					
Segment 19: Vermont - Hoover	NS @ Vermont	**Vermont**	**Westmoreland**	P/T-2-2-P/T			0		NS @ Vermont
	NS @ Westmoreland	**Westmoreland**	**Magnolia**	P/T-2-2-P/T			**Commercial**		NS @ Westmoreland
	NS @ Magnolia	**Magnolia**	**Hoover**	P/T-2-2-P/T					NS @ Magnolia

Segment 20: Hoover - Union	NS @ Hoover	**Hoover**	**Alvarado**	P/T-2-2-P		Note: At Hoover squeezed in a left turn with a red curb lane	**Commercial**		NS @ Hoover
		"	**"**	2-CL-2-P/T					
		Alvarado	**Bonnie Brae**	/T-2-LT-2-P/T (@ intersectior	LTA @ Alvarado	Note: Red curb allows Left Turn here			
		"	**"**	P/T-2-2-P/T			**Commercial**		
	NS @ Bonnie Brae	**Bonnie Brae**	**Union**	2-LT-2(@ intersection)		Note: P/T lane may not be feasible as a 3rd, westbound lane			NS @ Bonnie Brae
		"	**"**	(AM)P/T-2-2-P/T(PM)					
				(AM)P/T-2-LT-2-P/T(PM)					

Segment 21: Union - E. of Figueroa	FS @ Union	**Union**	**Valencia**	P/T-2-CL-2-P/T(PM)					
		"	**"**	2-CL-2-P/T(PM)					
		Valencia	**Albany**	2-CL-2-P/T(PM)			**Commercial**		
	NS @ Albany	**Albany**	**Cherry**	(AM)P/T-2-CL-2-P/T(PM)					
	FS @ Cherry	**Cherry**	**Convention Center**	3-LT-2-RT		RM			
		Convention Center	**Figueroa**	3-LT-3		RM Note: Convention Center overpass is not a good area to convert 2-way to 1-way		TS @ Convention Center Exit	
	FS @ Figueroa	**Figueroa**	**E. of Figueroa**	(AM)P/T-2-CL-3					NS @ Figueroa

WINDSHIELD SURVEY TAKEN FEBRUARY 7, 2007

LEGEND

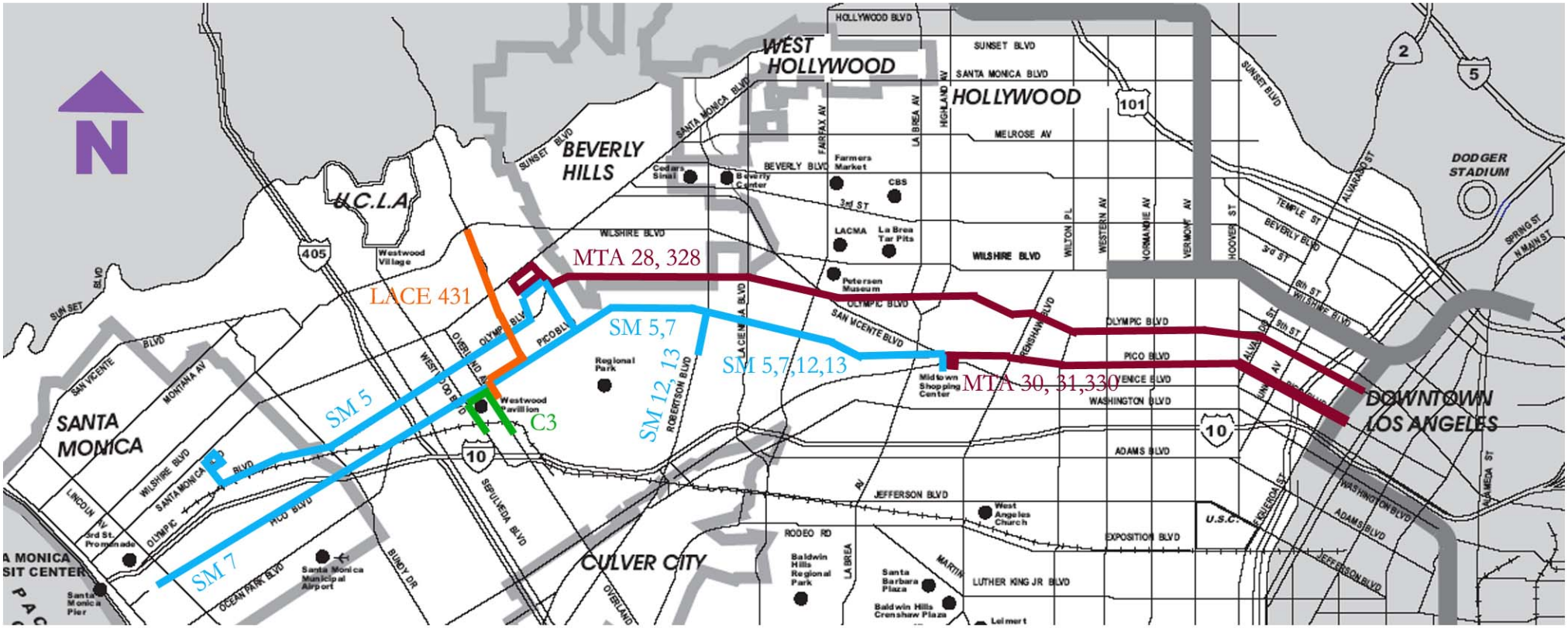
P-2-CL-2-P	LANE CONFIGURATION READING SOUTH TO NORTH - --- PARKING; 2 THRU, CENTER LANE, 2 THRU, PARKING
P/T	PARKING OFF PEAK HOUR - THRU LANE PEAK HOUR
P	PARKING ALLOWED ALL DAY
2	2 THRU LANES
CL	CENTER LANE - PROVIDES MIDBLOCK LEFT TURNS
LT	LEFT TURN LANE
RT	RIGHT TURN LANE
RM	RAISED MEDIAN
NS	NEAR SIDE BUS STOP
FS	FAR SIDE BUS STOP

ASSUME 90 SECOND CYCLE - 4 PHASES - IMPROVE TO 3 PHASES

	BASE		IMPROVED		ADDED TIME	
	SEC	PERCENT	SEC	PERCENT	SEC	
PICO/OLYMPIC	18	20.0%	25	27.8%	7	38.9%
PRINCIPAL CROSS STREET	18	20.0%	24	26.7%	6	33.3%
YELLOW/ALL RED (2@4;2@3)	14	15.6%	11	12.2%		
LEFT TURN ARROWS (4 @ 10") (versus 3@ 10")	40	44.4%	30	33.3%		
TOTAL	90	100.0%	90	100.0%		

Exhibit 3c - Capacity Impacts of Left Turn Arrows

TRANSIT ROUTES



SM - Santa Monica Municipal Bus Lines

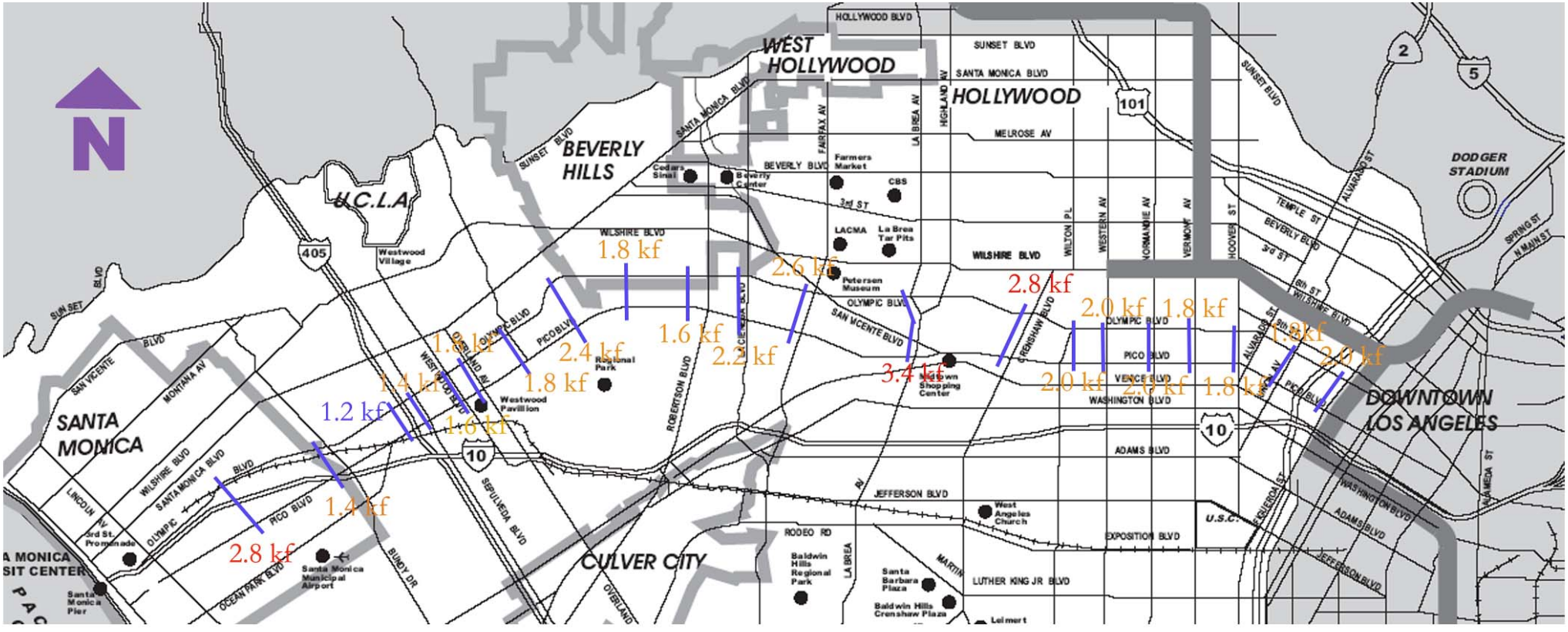
LACE - LADOT Commuter Express

MTA - La County Metro Bus Routes

C - Culver City Municipal Bus Lines

Exhibit 4a - Existing Bus Routes

Exhibit 4b - Walking Distance for Bus Riders



Distance between Olympic and Pico (Thousands of feet - kf)

less than 1/4 mile = 1320 feet = 1.3 kf	Acceptable
less than 1/2 mile = 2640 feet = 2.6 kf	Not Acceptable
more than 1/2 mile (greater than 2.6 kf)	Not Acceptable

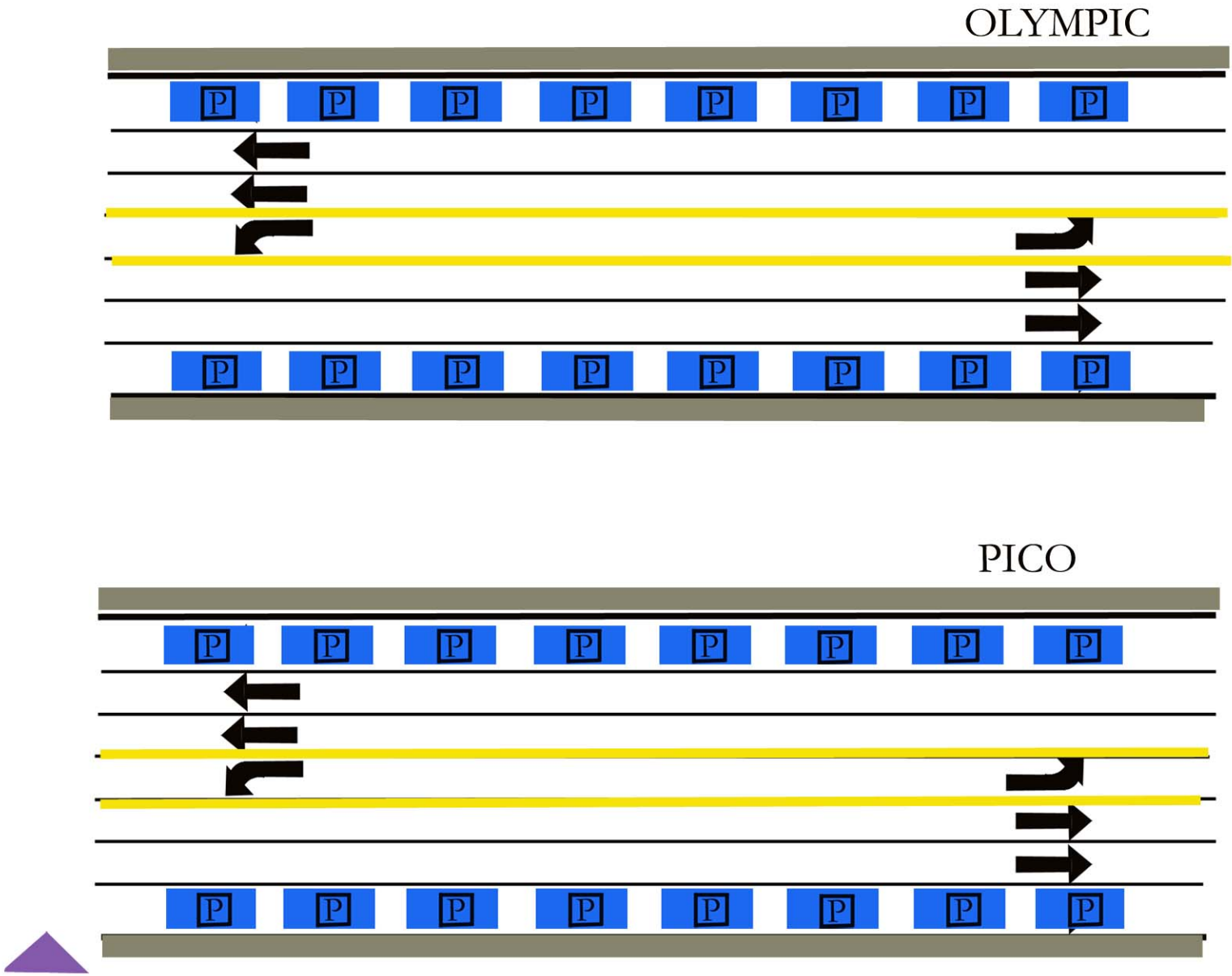


Exhibit 5a - Typical Existing Striping - off peak periods

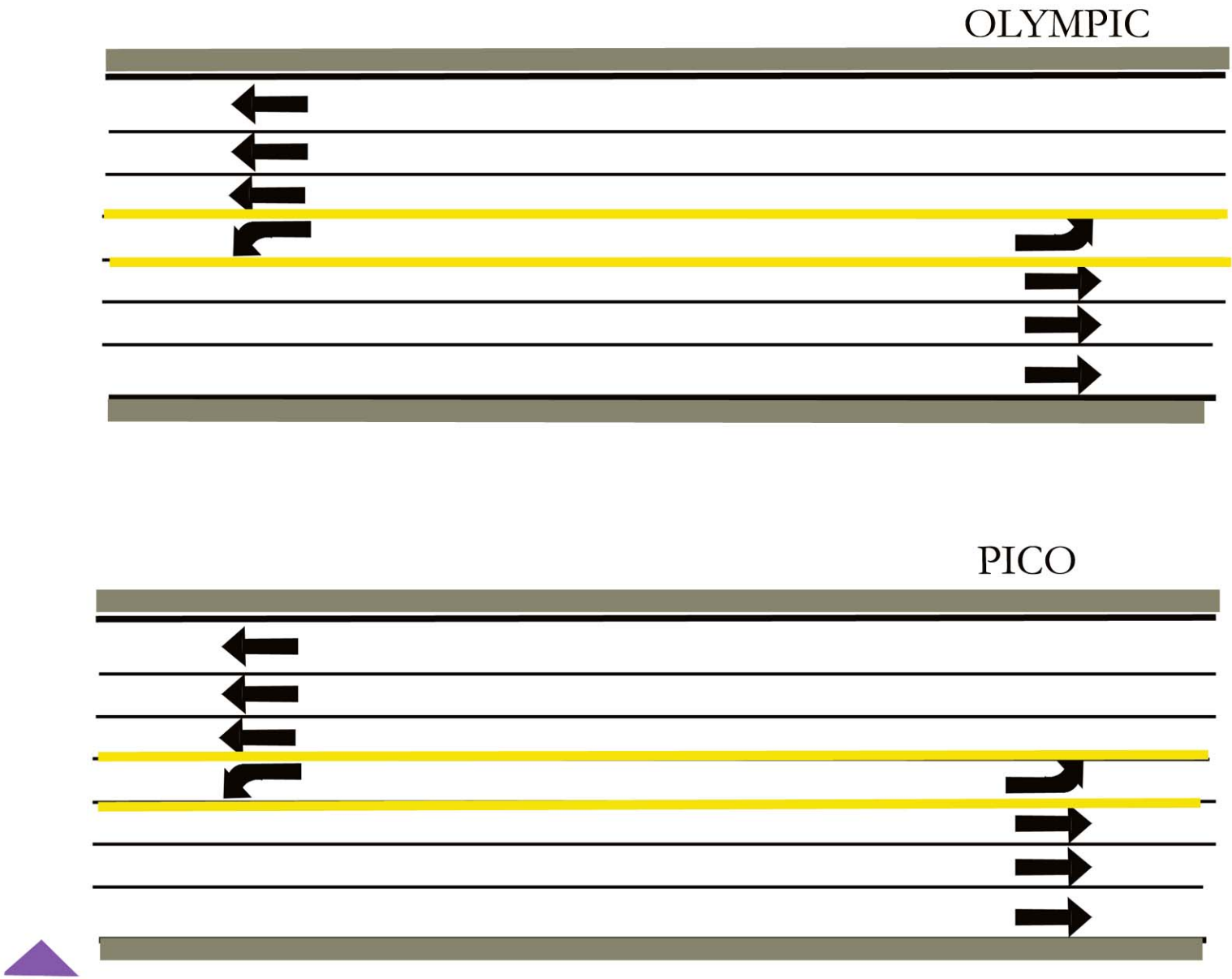


Exhibit 5b - Typical Existing Striping - peak periods

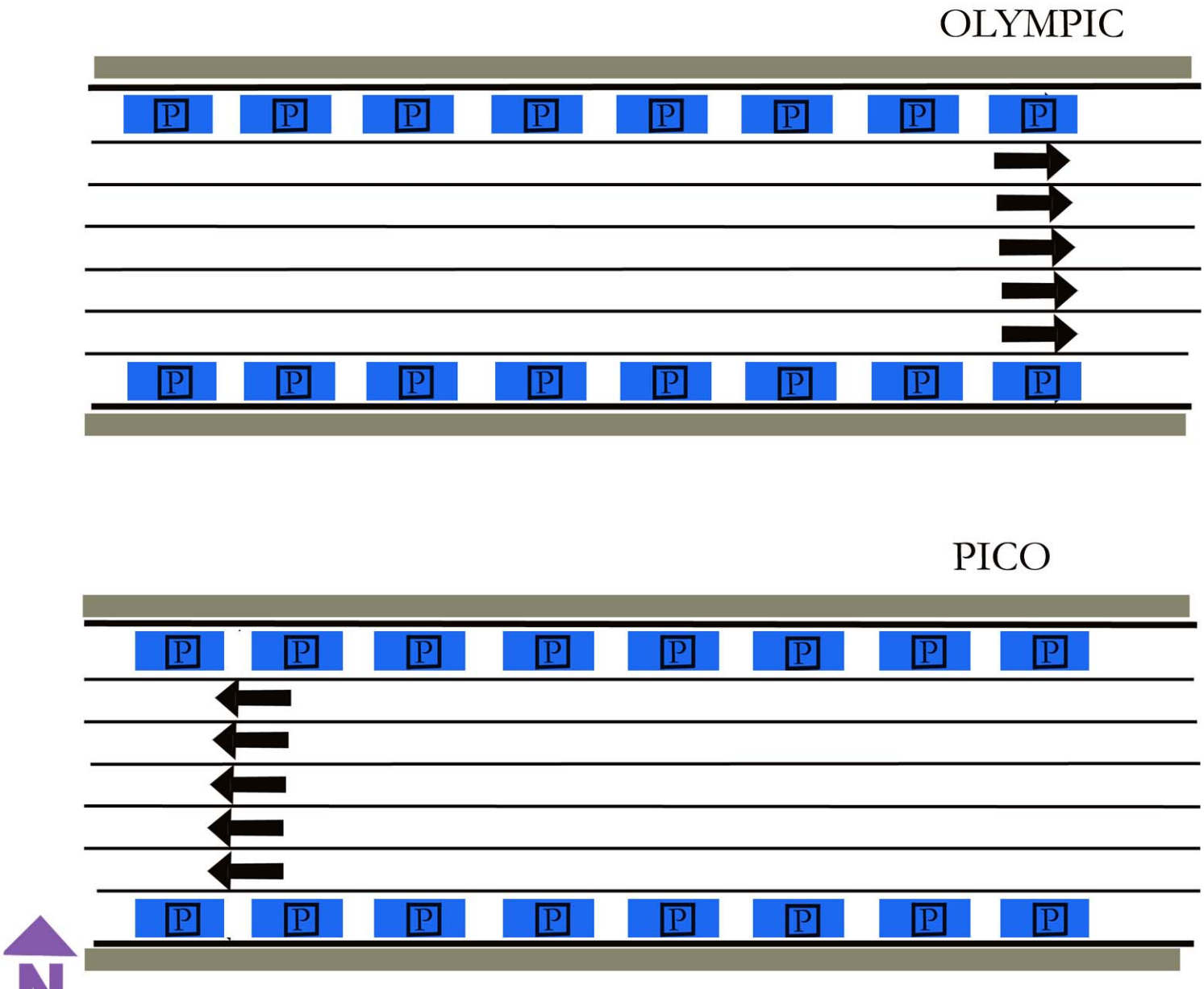


Exhibit 5c - Possible One-way Striping - off peak periods

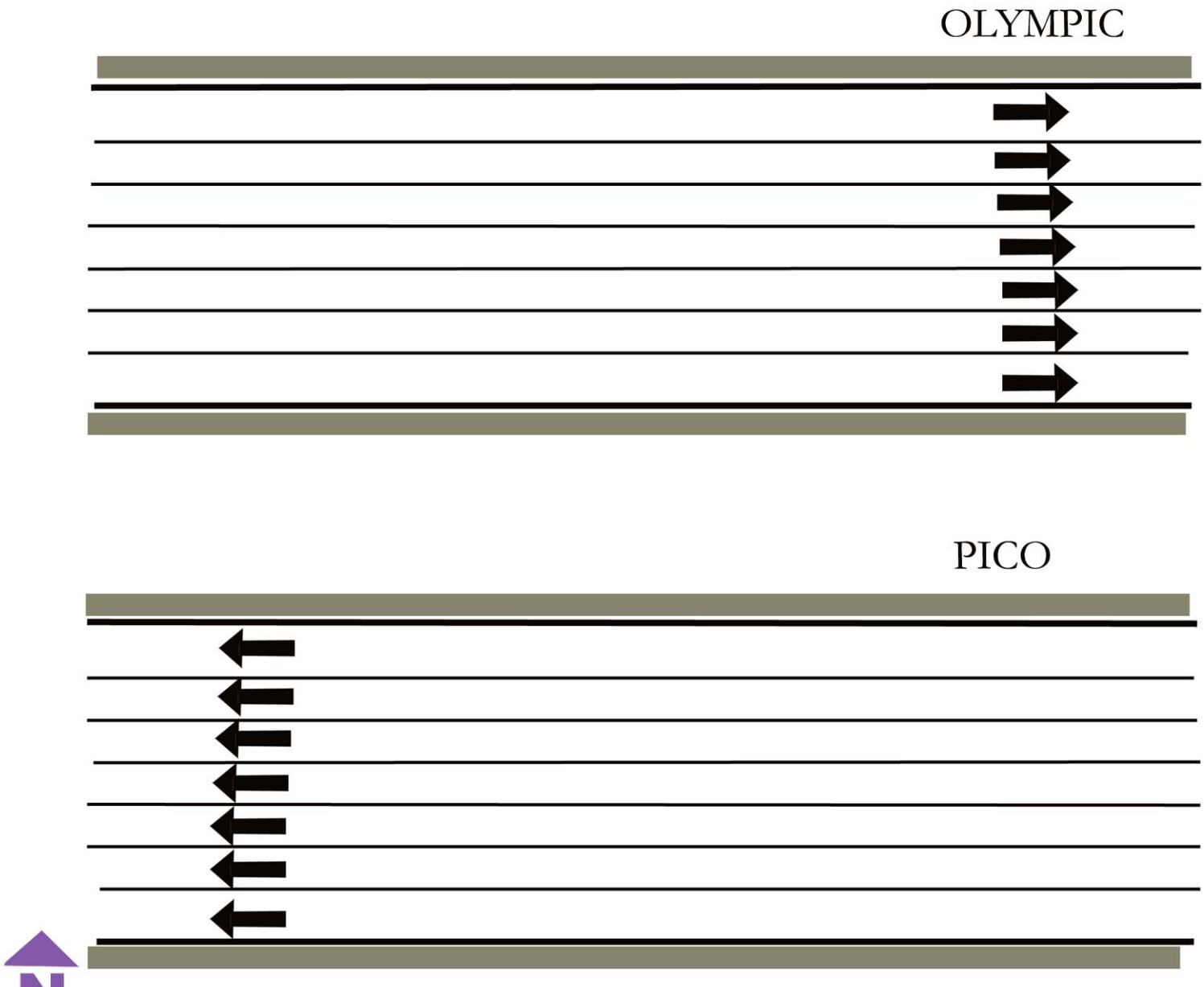


Exhibit 5d - Possible One-way Striping - peak periods

OLYMPIC - PICO CORRIDOR

ALTERNATIVE LANE CONFIGURATIONS

CAPACITY - VEHICLES PER HOUR

ID	MAIN FLOW					CONTRA-FLOW				
	VEHICLES	# OF LANES	PARKING	LEFT TURNS	CAPACITY	VEHICLES	# OF LANES	PARKING	LEFT TURNS	CAPACITY
I	mixed/phased	2	1	1	1240	mixed/phased	2	1	1	1240
IP	mixed/phased	3	0	1	1680	mixed/phased	3	0	1	1680
IPA	mixed/lt on green	3	0	1	1900	mixed/LT on green	3	0	1	1900
IP-NLT	mixed no LT	3	0	0	1800	mixed no LT	3	0	0	1800
II	mixed	3	1	1	1900	mixed - no LT	1	1	0	590
IIP	mixed	4	0	1	2500	bus/vans/bikes	2	0	0	1050
IIP-NLT	mixed	5	0	0	3000	bus/vans/bikes	2	0	0	1050
III	mixed-parking	5	2	0	3000	none	0	0	0	0
IIIP	mixed no parking	7	0	0	4200	none	0	0	0	0
IV-NLT	mixed-parking	3	1	0	1800	mixed-parking	2	1	0	1200
IVP-NLT	mixed-no parking	4	0	0	2400	mixed-no parking	3	0	0	1800

	ALTERNATIVES	**(Contra-flow alternatives)**
I	**BASE CASE - NOT PEAK HOUR**	
IP	**BASE CASE - PEAK HOUR**	
IPA	**BASE CASE - PEAK HOUR - LEFT TURN WITHOUT ARROWS**	
IP-NLT	**BASE CASE - PEAK HOUR NO LEFT TURN**	
II	**CONTRA FLOW - NOT PEAK HOUR**	
IIP	**CONTRA FLOW - PEAK HOUR**	
IIP - NLT	**CONTRA FLOW - PEAK HOUR- NO LEFT TURN**	
III	**ONE WAY - PARKING ALLOWED**	
IIIP	**ONE WAY - NO PARKING**	
IV-NLT	**OFF CENTER - NO LEFT TURN**	
IVP-NLT	**OFF-CENTER - NO PARKING NO LEFT TURN**	

OLYMPIC - PICO CORRIDOR

CAPACITY COMPARISON OF ALTERNATIVES

	TOTAL VEHICLE CAPACITY - both directions both streets				
	ID	MIXED FLOW THRU LANES	PERCENT CHANGE	VEHICLES per hour	PERCENT CHANGE
BASE OFF PEAK HOUR	**I**	8	n/a	4960	n/a
compared to Base Off Peak Hour	**II**	8	0.0%	4980	0.4%
compared to Base Off Peak Hour	**III**	10	25.0%	6000	21.0%
compared to Base Off Peak Hour	**IV-NLT**	10	25.0%	6000	21.0%
BASE PEAK HOUR	**IP**	12	n/a	6720	n/a
compared to Base Peak Hour	**IP-NLT**	12	0.0%	7200	7.1%
compared to Base Peak Hour	**IPA**	12	0.0%	7600	13.1%
compared to Base Peak Hour	**IIP**	8	-33.3%	7100	5.7%
compared to Base Peak Hour	**IIP-NLT**	10	-16.7%	8100	20.5%
compared to Base Peak Hour	**IIIP**	14	16.7%	8400	25.0%
compared to Base Peak Hour	**IVP-NLT**	14	16.7%	8400	25.0%

	ALTERNATIVES	**(Contra-flow alternatives)**
I	**BASE CASE - NOT PEAK HOUR**	
IP	**BASE CASE - PEAK HOUR**	
IPA	**BASE CASE - PEAK HOUR - LEFT TURN WITHOUT ARROWS**	
IP-NLT	**BASE CASE - PEAK HOUR NO LEFT TURN**	
II	**CONTRA FLOW - NOT PEAK HOUR**	
IIP	**CONTRA FLOW - PEAK HOUR**	
IIP - NLT	**CONTRA FLOW - PEAK HOUR- NO LEFT TURN**	
III	**ONE WAY - PARKING ALLOWED**	
IIIP	**ONE WAY - NO PARKING**	
IV-NLT	**OFF CENTER - NO LEFT TURN**	
IVP-NLT	**OFF-CENTER - NO PARKING NO LEFT TURN**	

NOTES: CAPACITY OF THRU LANES AND DERIVATION OF CONTRA-FLOW LANE CAPACITY

VEHICLES PER HOUR	VEHICLES PER HOUR
THRU LANE - NO LEFT TURN PHASING/NO FRICTION = 600 VEH PER HOUR (SEE SHEET 4)	600
THRU LANE - WITH LEFT TURN PHASING = 440 VEH PER HOUR (SEE SHEET 4)	440
LEFT ON GREEN = 2.5 VEH PER CYCLE@ 90 SEC CYCLE = 100 VEH PER HOUR (SEE SHEET 4)	100
LEFT WITH ARROW = 1 SEC HEADWAY/ 10 SEC/ 1SEC LOSS TIME = 360 VEH PER HOUR (SEE SHEET 4)	360

CONTRA-FLOW LANE - PEAK HOUR		PASSENGER PER HOUR
BUS ONLY LANE = 20 BUSES PER HOUR (3 minute headway, 50 pers / bus)	"practical capacity"	1000
VANPOOL = 20 VANS PER HOUR (3 minute hdway van, 8 per/van, 1.1 pers/car)	"practical capacity"	160
LOCAL TRAFFIC = NONE		0
HOV LANE (BUS AND VANPOOLS)	"practical capacity"	1160

EQUIV VEH PER HOUR			
BUSES	909	EQUIV VEH PER HOUR (1000 DIVIDED BY 1.1 PERSON PER VEH)	
VAN	145	EQUIV VEH PER HOUR (160 DIVIDED BY 1.1 PERSON PER VEH)	
LOCAL TRAFFIC	0	EQUIV VEH PER HOUR (0 DIVIDED BY 1.1 PERSON PER VEH)	
TOTAL	1055	TOTAL EQUIV VEH PER HOUR (BOTH LANES)	**SAY 1050**

CONTRA-FLOW LANE - OFF PEAK		PASSENGER PER HOUR
BUS ONLY LANE = 6 BUSES PER HOUR (10 minute headway, 35 pers / bus)	"practical capacity"	210
VANPOOL = NONE		0
LOCAL TRAFFIC = 10 VEHICLE QUEUE with 90 SEC CYCLE = 3600 div by 90 times 5 times 1.1 pers/car	"practical capacity"	440
HOV LANE (BUS AND VANPOOLS)	"practical capacity"	650

EQUIV VEH PER HOUR			
BUSES	191	EQUIV VEH PER HOUR (120 DIVIDED BY 1.1 PERSON PER VEH)	
VAN	0	EQUIV VEH PER HOUR (0 DIVIDED BY 1.1 PERSON PER VEH)	
LOCAL	400	EQUIV VEH PER HOUR (220 DIVICED BY 1.1 PERSON PER VEH)	
TOTAL	591	TOTAL EQUIV VEH PER HOUR (BOTH LANES)	**SAY 590**

BASE CAPACITY ASSUMPTIONS - EFFECT OF LEFT TURN ARROWS

REDUCTION OF LEFT TURN PHASES

ASSUME 90 SECOND CYCLE - 4 PHASES - IMPROVE TO 3 PHASES

	BASE SEC	PERCENT	IMPROVED SEC	PERCENT	ADDED CAPACITY SEC	
PICO/OLYMPIC	18	20.0%	25	27.8%	7	38.9%
PRINCIPAL CROSS STREET	18	20.0%	24	26.7%	6	33.3%
YELLOW/ALL RED (2@4;2@3)	14	15.6%	11	12.2%		
LEFT TURN ARROWS (4 @ 10") (versus 3@ 10")	40	44.4%	30	33.3%		
TOTAL	90	100.0%	90	100.0%		

LEFT TURN LANES

NO ARROW 2.5 VEH PER CYCLE @ 90 SECOND CYCLE = **100 VEH PER HOUR**

ARROW 1 SEC HEADWAY @ 10 SEC/CYCLE @ 90 SEC CYCLE = **360 VEH PER HOUR**
and 1 sec lost time

THRU LANES (90 SEC CYCLE AT ABOVE MULTI PHASE SPLIT

FRICTION 1800 VEH PER HOUR GREEN 0.5 VEH PER SEC = 360

NO FRICTION 2200 VEH PER HOUR GREEN 0.6 VEH PER SEC = **440 VEH PER HOUR**

440 VPH X 1.389 = 611

SAY 600 VPH PER LANE